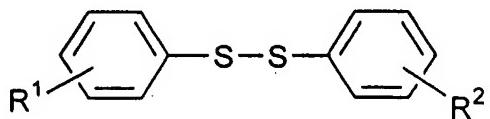


AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently amended): A non-aqueous secondary battery which comprises a positive electrode, a negative electrode, a separator, and an electrolytic solution which contains a substituted diphenyldisulfide derivative having the formula:



wherein each of R¹ and R² ~~independently represents~~ is an alkoxy group having 1 to 4
1-6 carbon atoms, an alkenyloxy group having 2 to 6 carbon atoms, an alkynyloxy group having 2 to 6 carbon atoms, a cycloalkyloxy having 3 to 6 carbon atoms, an aryloxy group having 6 to 12 carbon atoms, an acyloxy group having 2 to 7 carbon atoms, an alkanesulfonyloxy group having 1 to 7 carbon atoms, an arylsulfonyloxy group having 6 to 10 carbon atoms, an alkoxy carbonyloxy group having 2 to 7 carbon atoms, an aryloxycarbonyloxy group having 7 to 13 carbon atoms, a halogen atom, or CP₃-CCl₃, or CBr₃,

in an amount of 0.01 to 5 weight % based on the amount of the electrolytic solution.

Claim 2 (Canceled).

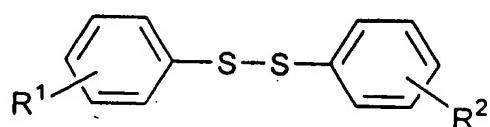
Claim 3 (Original): The non-aqueous secondary battery of claim 1, wherein the substituted diphenyldisulfide derivative is contained in the non-aqueous electrolytic solution in an amount of 0.01 to 2 weight % based on the amount of the electrolytic solution.

Claim 4 (Original): The non-aqueous secondary battery of claim 1, wherein the positive electrode comprises lithium complex oxide.

Claim 5 (Original): The non-aqueous secondary battery of claim 1, wherein the negative electrode comprises natural graphite or artificial graphite.

Claim 6 (Original). The non-aqueous secondary battery of claim 5, wherein the natural or artificial graphite has a lattice plan of (002) having a plane distance in term of d_{002} in a length of 0.335 to 0.340 nm.

Claim 7 (Currently amended): A non-aqueous electrolytic solution containing a substituted diphenyldisulfide derivative having the following formula:



wherein each R¹ and R² independently represents is an alkoxy group having 1 to 6 carbon atoms, an alkenyloxy group having 2 to 6 carbon atoms, an alkynyoxy group having 2 to 6 carbon atoms, a cycloalkyloxy having 3 to 6 carbon atoms, an aryloxy group, an acyloxy group having 2 to 7 carbon atoms, an alkanesulfonyloxy group having 1 to 7 carbon atoms, an arylsulfonyloxy group having 6 to 10 carbon atoms, an alkoxycarbonyloxy group having 2 to 7 carbon atoms, an aryloxycarbonyloxy group, a halogen atom, CF₃, CC1₃, or CBr₃, in an amount of 0.01 to 5 weight % based on the amount of electrolytic solution.

Claim 8 (Canceled).

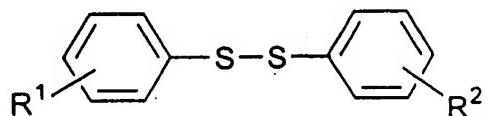
Claim 9 (Original): The non-aqueous electrolytic solution of claim 7 in which the substituted diphenyldisulfide derivative is bis(4-methoxyphenyl)disulfide.

Claim 10 (Original): The non-aqueous electrolytic solution of claim 7, wherein the substituted diphenyldisulfide derivative is contained in the non-aqueous electrolytic solution in an amount of 0.01 to 2 weight % based on the amount of the electrolytic solution.

Claim 11 (Original): The non-aqueous electrolytic solution of claim 7, which contains LiPF₆, LiBF₄, LiClO₄, LiN(SO₂CF₃)₂, LiN(SO₂C₂F₅)₂, LiC(SO₂CF₃)₃, LiPF₄(CF₃)₂, LiPF₃(CF₃)₃, LiPF₃(C₂F₅)₃, LiPF₅(iso-C₃F₇), or LiPF₄(iso-C₃F₇)₂.

Claim 12 (Original): The non-aqueous electrolytic solution of claim 7, which contains a solvent selected from the group consisting of ethylene carbonate, propylene carbonate, butylene carbonate, vinylene carbonate, dimethyl carbonate, methyl ethyl carbonate, methyl isopropyl carbonate, methyl isobutyl carbonate, diethyl carbonate, diisopropyl carbonate, diisobutyl carbonatetetrahydrofuran, 2-methyltetrahydrofuran, 1,4-dioxane, 1,2-dimethoxyethane, 1,2-diethoxyethane, 1,2-dibutoxyethane, γ -butyrolactone, acetonitrile, methyl propionate, and dimethylformamide.

Claim 13 (Original): A non-aqueous secondary battery which comprises a positive electrode, a negative electrode, a separator, and an electrolytic solution which contains a substituted diphenyldisulfide derivative having the formula:



wherein each of R¹ and R² independently represents an alkoxy group having 1 to 6 carbon atoms, an alkenyloxy group having 2 to 6 carbon atoms, an alkynyloxy group having 2 to 6 carbon atoms, a cycloalkyloxy having 3 to 6 carbon atoms, an aryloxy group having 6 to 12 carbon atoms, an aralkyloxy group having 7 to 15 carbon atoms, an acyloxy group having 2 to 7 carbon atoms, an alkanesulfonyloxy group having 1 to 7 carbon atoms, an arylsulfonyloxy group having 6 to 10 carbon atoms, an alcoxycarbonyloxy group having 2 to 7 carbon atoms, a halogen atom, CF₃, CC₁₃, or CBr₃,

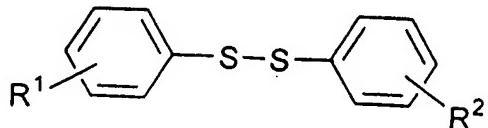
in an amount of 0.001 to 5 weight % based on the amount of the electrolytic solution, and an additive compound selected from the group consisting of methyl 2-propylcarbonate, 2-propynyl methanesulfonate, 1,3-propanesultone, divinylsulfone, and 1,4-butanediol dimethanesulfonate, in an amount of 0.01 to 10 weight % based on the amount of the electrolytic solution.

Claim 14 (Original): The non-aqueous secondary battery of claim 13, in which each of R¹ and R² is an alkoxy group having 1 to 6 carbon atoms.

Claim 15 (Original): The non-aqueous secondary battery of claim 13, wherein the negative electrode comprises natural graphite or artificial graphite.

Claim 16 (Original): The non-aqueous secondary battery of claim 15, wherein the natural or artificial graphite has a Lattice plane of (002) having a plane distance in term of d₀₀₂ in a length of 0.335 to 0.340 nm.

Claim 17 (Original): A non-aqueous electrolytic solution containing a substituted diphenyldisulfide derivative having the following formula:



wherein each of R¹ and R² independently represents an alkoxy group having 1 to 6 carbon atoms, an alkenyloxy group having 2 to 6 carbon atoms, an alkynyoxy group having 2 to 6 carbon atoms, a cycloalkyloxy having 3 to 6 carbon atoms, an aryloxy group having 6 to 12 carbon atoms, an aralkyloxy group having 7 to 15 carbon atoms, an acyloxy group having 2 to 7 carbon atoms, an alkanesulfonyloxy group having 1 to 7 carbon atoms, an arylsulfonyloxy group having 6 to 10 carbon atoms, an alcoxycarbonyloxy group having 2 to 7 carbon atoms, a halogen atom, CF₃, CC1₃, or CBr₃,

in an amount of 0.001 to 5 weight % based on the amount of the electrolytic solution, and an additive compound selected from the group consisting of methyl 2-propylcarbonate, 2-propynyl methanesulfonate, 1,3-propanesultone, divinylsulfone, and 1,4-butanediol dimethanesulfonate, in an amount of 0.01 to 10 weight % based on the amount of the electrolytic solution.

Claim 18 (Original): The non-aqueous electrolytic solution of claim 17, in which each of R¹ and R² is an alkoxy group having 1 to 6 carbon atoms.

Claim 19 (Original): The non-aqueous electrolytic solution of claim 17 in which the substituted diphenyldisulfide derivative is bis(4-methoxyphenyl)disulfide.

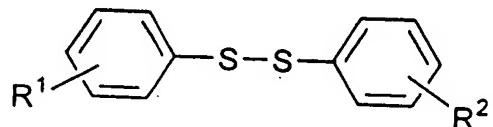
Claim 20 (Original): The non-aqueous electrolytic solution of claim 17, wherein the substituted diphenyldisulfide derivative is contained in the non-aqueous electrolytic solution in an amount of 0.01 to 0.7 weight % based on the amount of the electrolytic solution.

Claim 21 (Original): The non-aqueous electrolytic solution of claim 17, wherein the additive is contained in the non-aqueous electrolytic solution in an amount of 0.05 to 5 weight % based on the amount of the electrolytic solution.

Claim 22 (Original): The non-aqueous electrolytic solution of claim 17, which contains LiPF₆, LiBF₄, LiClO₄, LiN(SO₂CF₃)₂, LiN(SO₂C₂F₅)₂, LiC(SO₂CF₃)₃, LiPF₄(CF₃)₂, LiPF₃(CF₃)₃, LiPF₃(C₂F₅)₃, LiPF₅(iso-C₃F₇), or LiPF₄(iso-C₃F₇)₂.

Claim 23 (Original): The non-aqueous electrolytic solution of claim 17, which contains a solvent selected from the group consisting of ethylene carbonate, propylene carbonate, butylene carbonate, vinylene carbonate, dimethyl carbonate, methyl ethyl carbonate, methyl isopropyl carbonate, methyl isobutyl carbonate, diethyl carbonate, diisopropyl carbonate, diisobutyl carbonatetetrahydrofuran, 2-methyltetrahydrofuran, 1,4-dioxane, 1,2-dimethoxyethane, 1,2-diethoxyethane, 1,2-dibutoxyethane, γ -butyrolactone, acetonitrile, methyl propionate, and dimethylformamide.

Claim 24 (Original): A non-aqueous secondary battery which comprises a positive electrode, a negative electrode, a separator, and an electrolytic solution which contains a substituted diphenyldisulfide derivative having the formula:



wherein each of R¹ and R² independently represents an alkoxy group having 1 to 6 carbon atoms, an alkenyloxy group having 2 to 6 carbon atoms, an alkynyoxy group having 2 to 6 carbon atoms, a cycloalkyloxy having 3 to 6 carbon atoms, an aryloxy group having 6 to 12 carbon atoms, an aralkyloxy group having 7 to 15 carbon atoms, an acyloxy group having 2 to 7 carbon atoms, an alkanesulfonyloxy group having 1 to 7 carbon atoms, an

arylsulfonyloxy group having 6 to 10 carbon atoms, an alkoxycarbonyloxy group having 2 to 7 carbon atoms, a halogen atom, CF₃, CCl₃, or CBr₃,

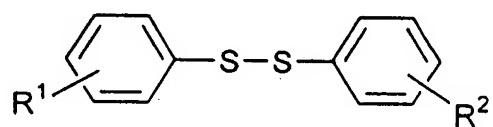
in an amount of 0.001 to 5 weight % based on the amount of the electrolytic solution, and cyclohexylbenzene in an amount of 0.1 to 5 weight % based on the amount of the electrolytic solution.

Claim 25 (Original): The non-aqueous secondary battery of claim 24, in which each of R¹ and R² is an alkoxy group having 1 to 24 carbon atoms.

Claim 26 (Original): The non-aqueous secondary battery of claim 24, wherein the negative electrode comprises natural graphite or artificial graphite.

Claim 27 (Original): The non-aqueous secondary battery of claim 26, wherein the natural or artificial graphite has a Lattice plane of (002) having a plane distance in term of d₀₀₂ in a length of 0.335 to 0.340 nm.

Claim 28 (Original): A non-aqueous electrolytic solution containing a substituted diphenyldisulfide derivative having the following formula:



wherein each of R¹ and R² independently represents an alkoxy group having 1 to 6 carbon atoms, an alkenyloxy group having 2 to 6 carbon atoms, an alkynyoxy group having 2 to 6 carbon atoms, a cycloalkyloxy having 3 to 6 carbon atoms, an aryloxy group having 6 to 12 carbon atoms, an aralkyloxy group having 7 to 15 carbon atoms, an acyloxy group having 2 to 7 carbon atoms, an alkanesulfonyloxy group having 1 to 7 carbon atoms, an arylsulfonyloxy group having 6 to 10 carbon atoms, an alkoxycarbonyloxy group having 2 to 7 carbon atoms, a halogen atom, CF₃, CCl₃, or CBr₃,

in an amount of 0.001 to 5 weight % based on the amount of the electrolytic solution, and cyclohexylbenzene in an amount of 0.1 to 5 weight % based on the amount of the electrolytic solution.

Claim 29 (Original): The non-aqueous electrolytic solution of claim 28, in which each of R¹ and R² is an alkoxy group having 1 to 6 carbon atoms.

Claim 30 (Original): The non-aqueous electrolytic solution of claim 28 in which the substituted diphenyldisulfide derivative is bis(4-methoxyphenyl)disulfide.

Claim 31 (Original): The non-aqueous electrolytic solution of claim 28, wherein the substituted diphenyldisulfide derivative is contained in the non-aqueous electrolytic solution in an amount of 0.01 to 0.7 weight % based on the amount of the electrolytic solution.

Claim 32 (Original): The non-aqueous electrolytic solution of claim 28, wherein the cyclohexylbenzene is contained in the non-aqueous electrolytic solution in an amount of 0.5 to 3 weight % based on the amount of the electrolytic solution.

Claim 33 (Original): The non-aqueous electrolytic solution of claim 28, which contains LiPF₆, LiBF₄, LiClO₄, LiN(SO₂CF₃)₂, LiN(SO₂C₂F₅)₂, LiC(SO₂CF₃)₃, LiPF₄(CF₃)₂, LiPF₃(CF₃)₃, LiPF₃(C₂F₅)₃, LiPF₅(iso-C₃F₇), or LiPF₄(iso-C₃F₇)₂.

Claim 34 (Original): The non-aqueous electrolytic solution of claim 28, which contains a solvent selected from the group consisting of ethylene carbonate, propylene carbonate, butylene carbonate, vinylene carbonate, dimethyl carbonate, methyl ethyl carbonate, methyl isopropyl carbonate, methyl isobutyl carbonate, diethyl carbonate, diisopropyl carbonate, diisobutyl carbonatetetrahydrofuran, 2-methyltetrahydrofuran, 1,4-dioxane, 1,2-dimethoxyethane, 1,2-diethoxyethane, 1,2-dibutoxyethane, γ -butyrolactone, acetonitrile, methyl propionate, and dimethylformamide.